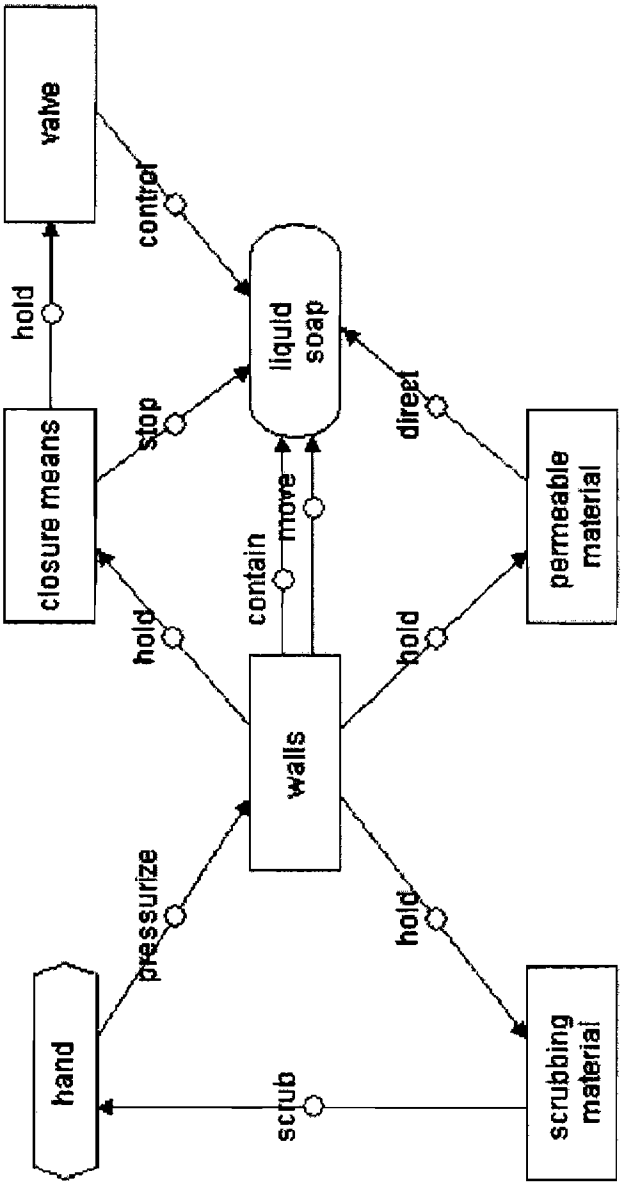

FIG. 1 (Prior Art)

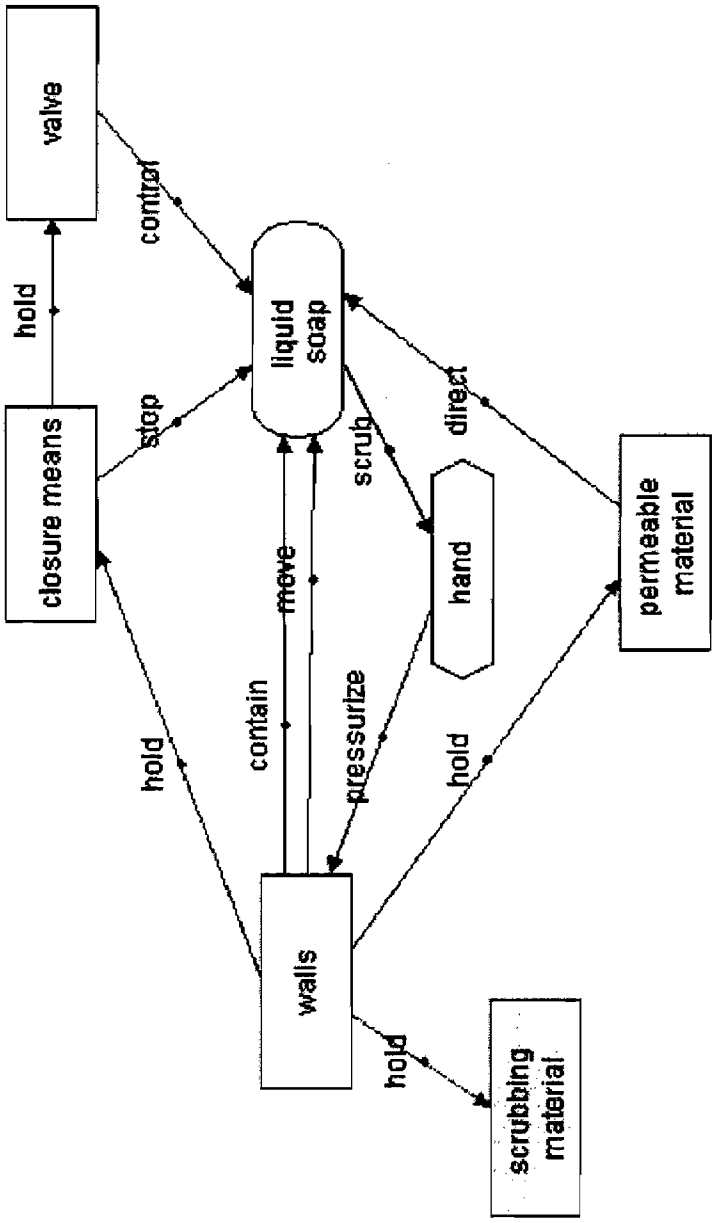

FIG. 2 (Prior Art)

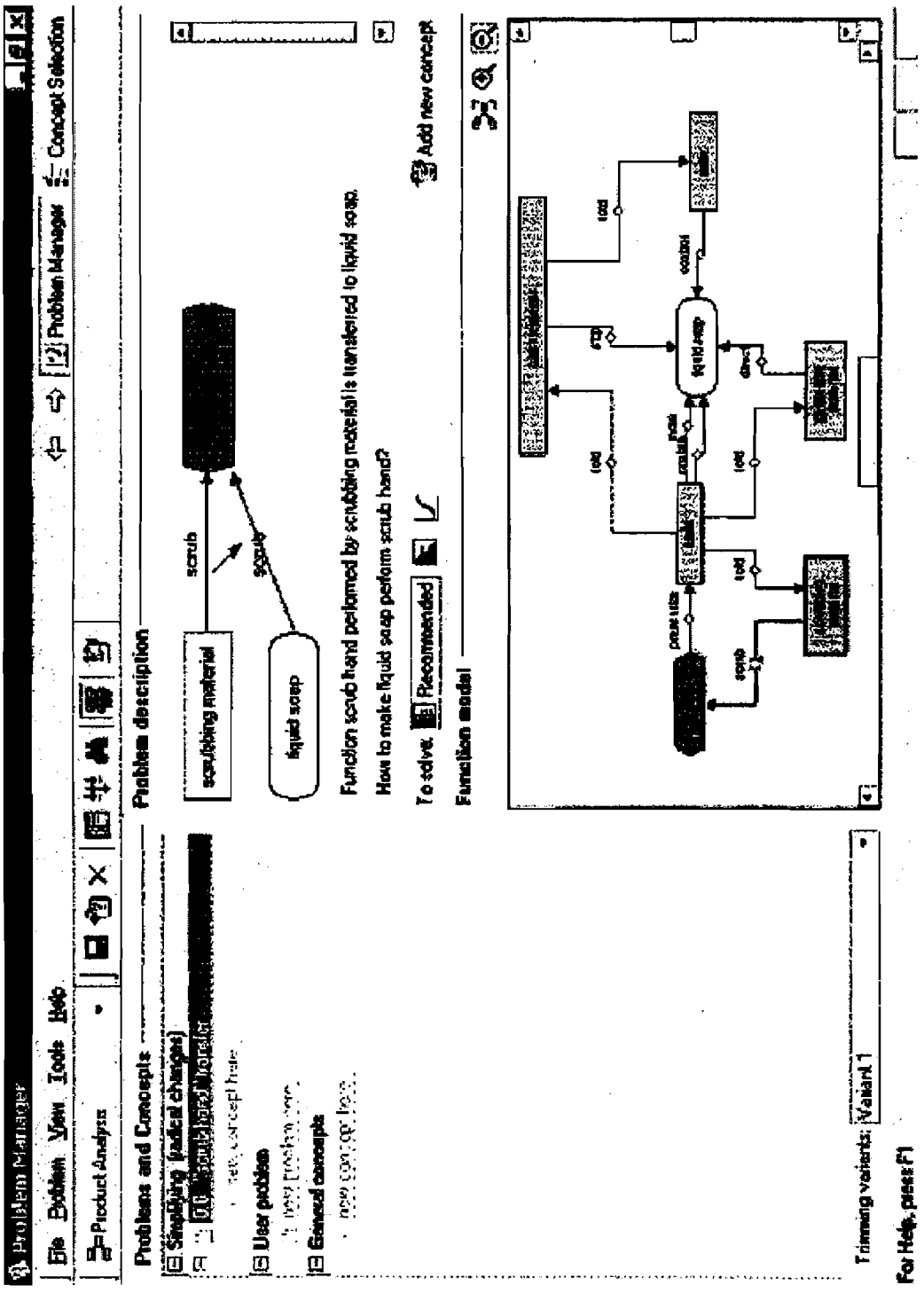

FIG. 3 (Prior Art)

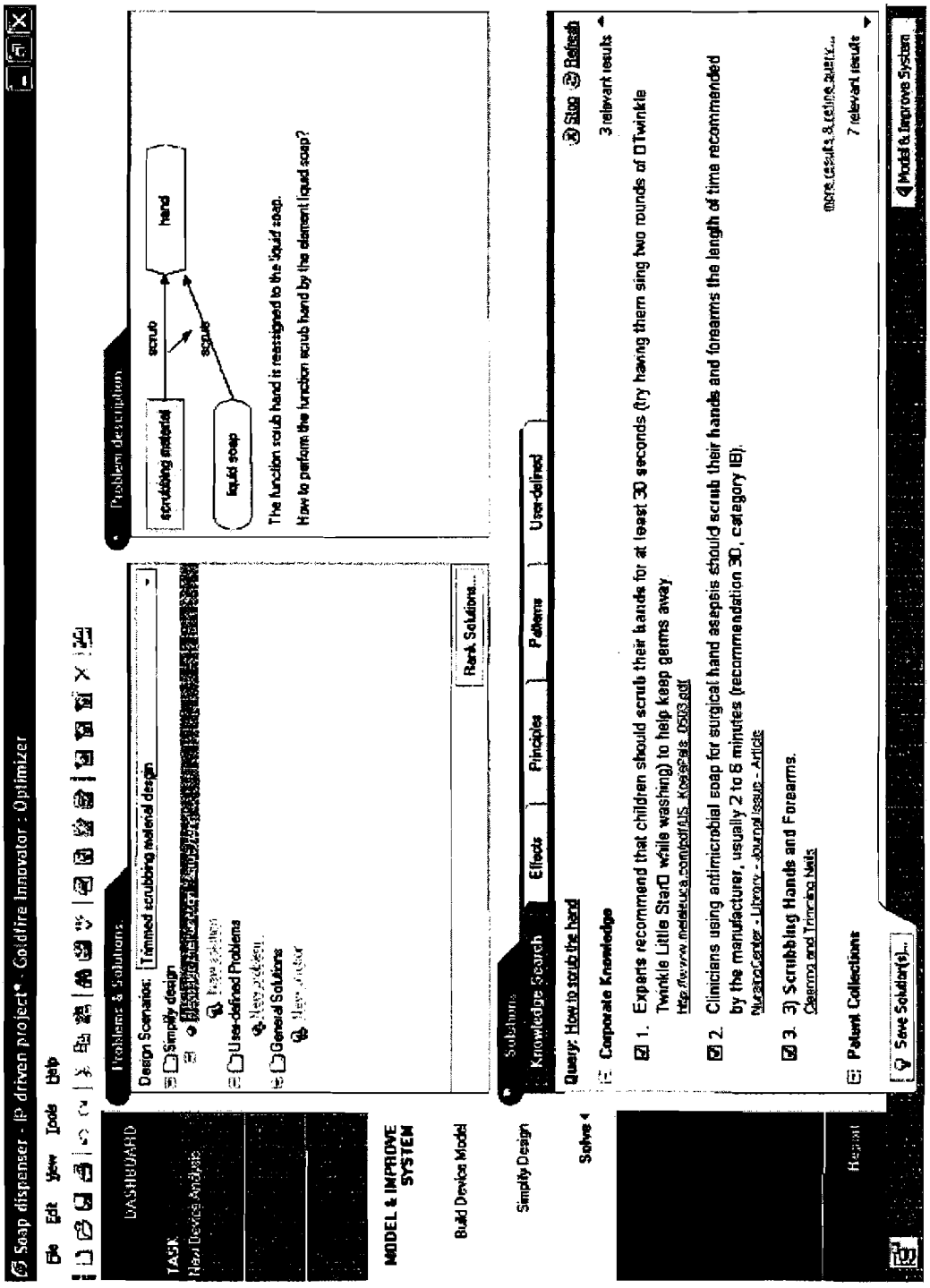
Soap dispenser - IP driven project* - Goldfire Innovator - Optimizer
File Edit View Tools Help
DASHBOARD
TASK:
New Device Analysis
MODEL & IMPROVE SYSTEM
Build Device Model
Simplify Design
Solve
Report
Problems & Solutions
Design Scenario: Trimmed scrubbing material design
Simplify design
Use-defined Problems
New problem
General Solutions
New solution
Rank Solutions...
Problem description
scrubbing material
scrub
hand
squish
liquid soap
The function scrub hand is reassigned to the liquid soap.
How to perform the function scrub hand by the element liquid soap?
Solutions
Knowledge Search
Effects
Principles
Patterns
User-defined
Stop
Refresh
Query: How to scrub the hand
3 relevant results
Corporate Knowledge
1. Experts recommend that children should scrub their hands for at least 30 seconds (try having them sing two rounds of DTwinkle Twinkle Little Star) while washing) to help keep germs away
http://www.metaeve.com/pdf/US_Keiaisis_0503.pdf
2. Clinicians using antimicrobial soap for surgical hand asepsis should scrub their hands and forearms the length of time recommended by the manufacturer, usually 2 to 6 minutes (recommendation 3D, category IB).
NurseCenter - Library - Journal Issue - Article
3. 3) Scrubbing Hands and Forearms.
Cleaning and Trimming Nails
more results & refine query...
Patent Collections
7 relevant results
Save Solution(s)...
Model & Improve System

FIG. 4

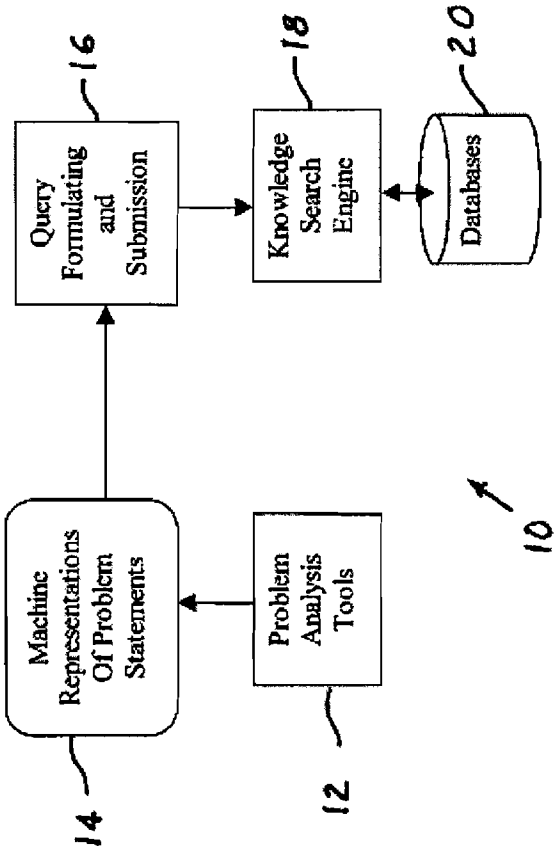
Machine Representations Of Problem Statements
Problem Analysis Tools
Query Formulating and Submission
Knowledge Search Engine
Databases
14
12
16
18
20
10

FIG. 5

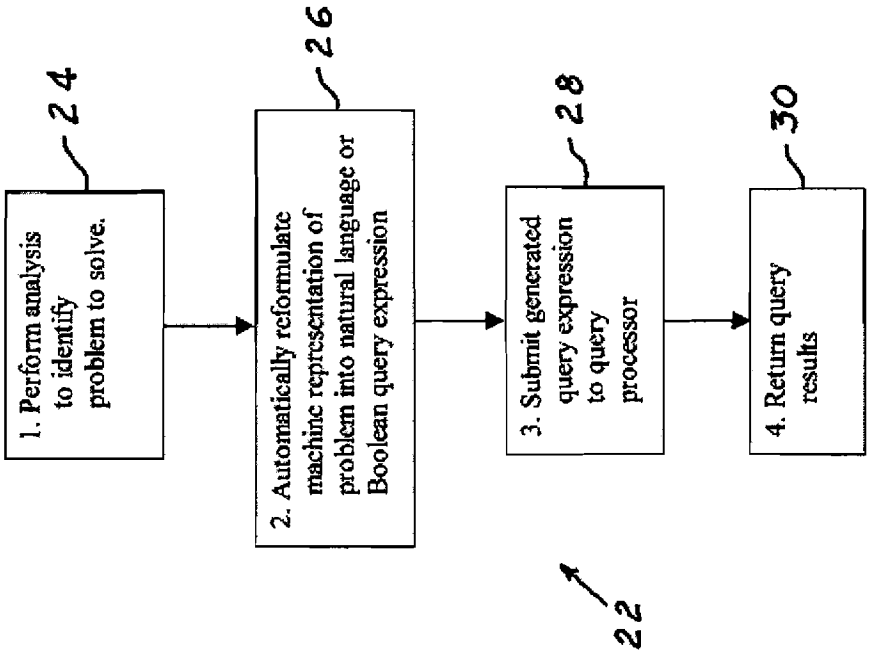
1. Perform analysis to identify problem to solve.
2. Automatically reformulate machine representation of problem into natural language or Boolean query expression
3. Submit generated query expression to query processor
4. Return query results
24
26
28
30
22

FIG. 6

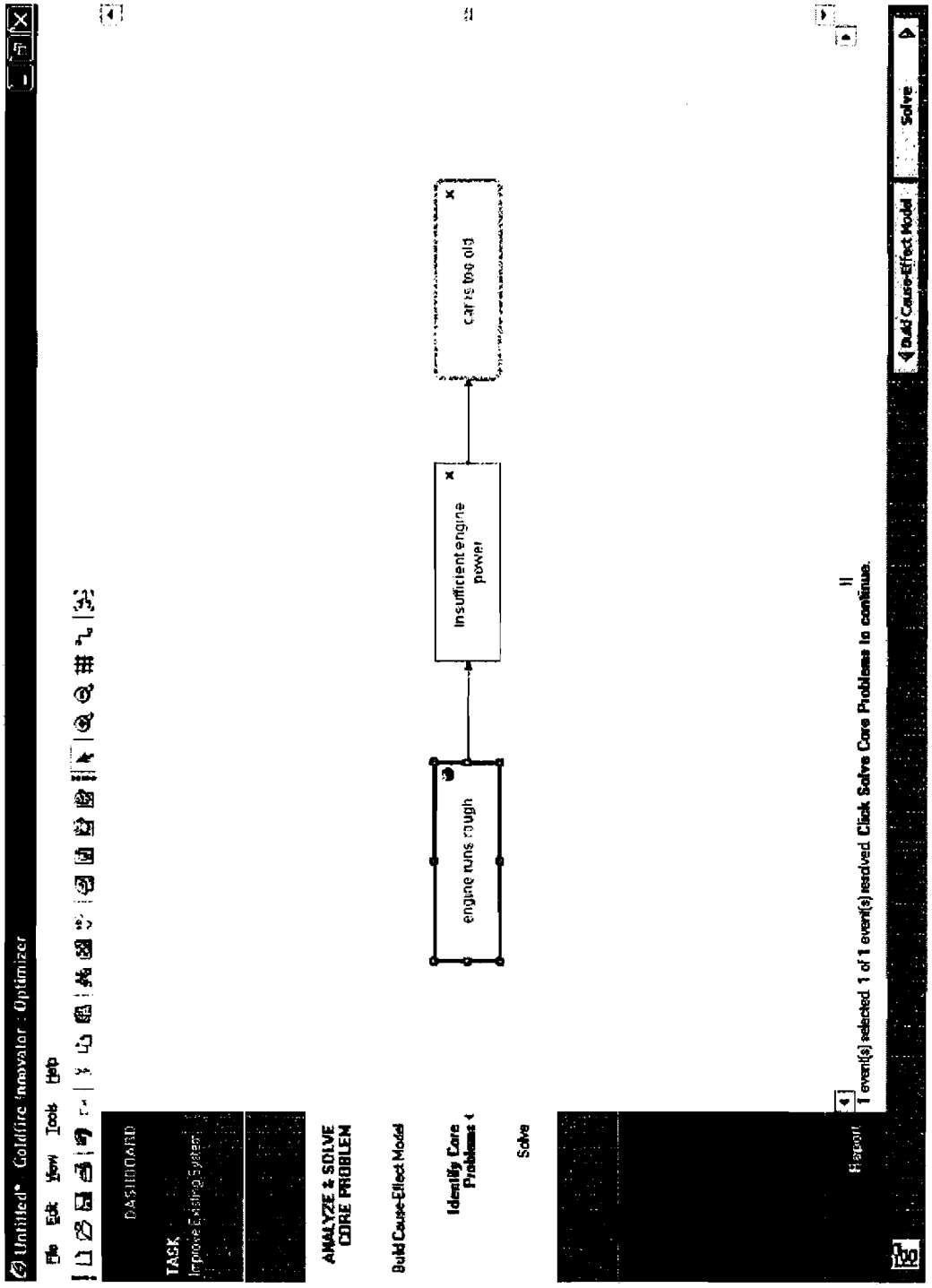
Unlimited* Goldfire Innovator : Optimizer
File Edit View Tools Help
DASHBOARD
TASK
Improve Existing System
ANALYZE & SOLVE CORE PROBLEM
Build Cause-Effect Model
Identify Core Problems
Solve
engine runs rough
Insufficient engine power
cams too old
Report
1 event(s) selected 1 of 1 event(s) resolved. Click Solve Core Problems to continue.
Build Cause-Effect Model
Solve

FIG. 7

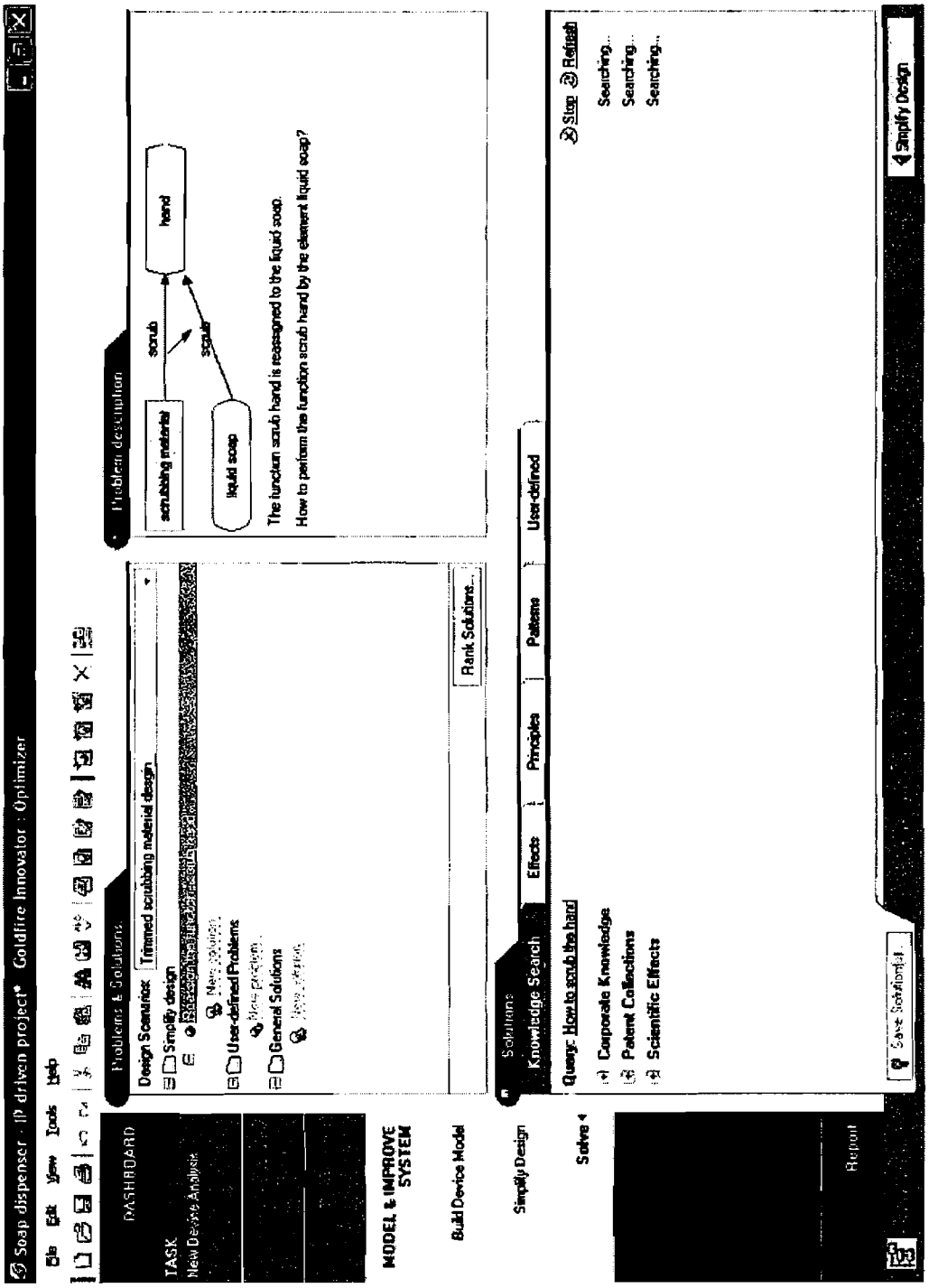
Soap dispenser - IP driven project* Goldfire Innovator : Optimizer
File Edit View Tools Help
DASHBOARD
TASK
New Device Analysis
MODEL & IMPROVE SYSTEM
Build Device Model
Simplify Design
Solve
Report
Problems & Solutions
Design Scenarios
Trimmed scrubbing material design
Simplify design
User-defined Problems
General Solutions
Rank Solutions...
Problem description
scrubbing material
scrub
hand
liquid soap
squish
The function scrub hand is reassigned to the liquid soap.
How to perform the function scrub hand by the element liquid soap?
Solutions
Knowledge Search
Effects
Principles
Patterns
User-defined
Query: How to scrub the hand
Corporate Knowledge
Patent Collections
Scientific Effects
Stop
Refresh
Searching...
Searching...
Searching...
Save Solution(s)
Simplify Design

FIG. 8

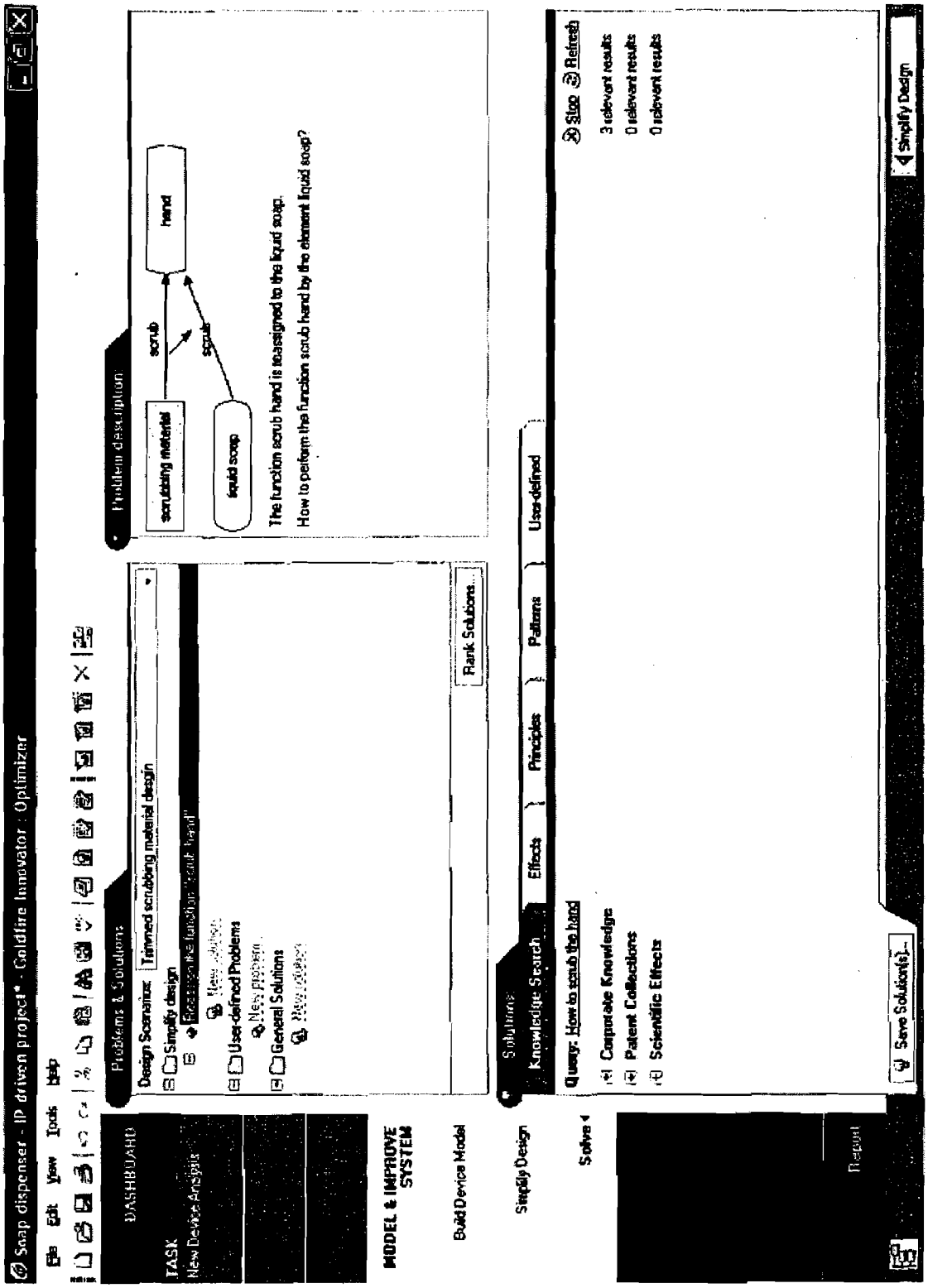
Soap dispenser - IP driven project* - Goldfire Innovator : Optimizer
File Edit View Tools Help
DASHBOARD
TASK
New Device Analysis
MODEL & IMPROVE SYSTEM
Build Device Model
Simplify Design
Solve
Report
Problems & Solutions
Design Scenarios: Trimmed scrubbing material design
Simplify design
Reassign the function "scrub hand"
New problem
User-defined Problems
New problem
General Solutions
New problem
Rank Solutions
Problem description
scrubbing material
scrub
hand
liquid soap
scrub
The function scrub hand is reassigned to the liquid soap.
How to perform the function scrub hand by the element liquid soap?
Solutions
Knowledge Search
Effects
Principles
Patterns
User-defined
Query: How to scrub the hand
Stop
Refresh
Corporate Knowledge
3 relevant results
Patent Collections
0 relevant results
Scientific Effects
0 relevant results
Save Solution(s)...
Simplify Design

FIG. 9